

# PATENT SPECIFICATION

249,120



Application Date: March 10, 1926. No. 6664/26.

Complete Accepted: Sept. 12, 1927.

## COMPLETE SPECIFICATION.

### Improvements in Electric Water Heaters.

I, WILLIAM HERBERT HOCKING, of "Linga-Longa", Unwins Bridge Road, Undercliffe, Sydney, in the State of New South Wales and Commonwealth of Australia, British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to electric water heaters of the type wherein metallic plates or the like are employed as the heating means, the plates or the like being so arranged that they may be included in an electric circuit so that water placed between the said plates and in contact therewith will, owing to its low electrical conductivity, be heated by the passage of current therethrough from one plate to the other when the electric circuit is closed. The object of the present invention is to provide improvements in heaters of this type.

According to the invention a water container is provided which is of porcelain or other non-conducting material, the utensil being of jug-like form having a lid of the same material to which are detachably secured concentrically arranged cylindrical metallic members having their surfaces comparatively close together. These metallic members bear contacts to allow of their being connected to opposite poles of an electrical source of supply, control means being provided for the supply of current to the container.

In order to fully describe this invention reference will be made to the annexed drawings wherein:

Fig. 1 is a front elevation of an electric water heater suitable for domestic purposes incorporating these improvements.

Fig. 2 is a central section of same.

Fig. 3 is a plan.

[Price 1/-]

Fig. 4 is a sectional plan on line 4—4 in Fig. 2.

Fig. 5 is a front elevation of the electrified members.

Fig. 6 is a plan of the underface of the lid.

Fig. 7 is an enlarged detail view of the method of affixture of the electrified members to the lid.

Fig. 8 is a plan of Fig. 7 but showing how the said electrified members are removed for cleaning.

The jug-like container of vessel 9 is of non-conducting material such as porcelain and of convenient capacity, say one quart, and it has a cover or lid 10 with handgrip 11 and a depending circular flange 12. Said flange 12 has locking lugs 13 thereon which are further described later in the text.

The electrified members 14 are in the form of open ended metal cylinders of good conducting material such as copper, electro-plate, and are adapted to fit one within the other with a comparatively narrow circular space between them. There are holes 15 in each said member 14 to enable the water to freely circulate around the container 9 and a slot 16 is also provided of such size to enable a removable electric plug fitting 17 (shown in dotted lines in Figs. 1 and 3) to pass therethrough and engage upon a pair of contact pins 18 one of which is affixed to each member 14, the contact pin 18 of the outer member 14 passing through a slot 18<sup>1</sup> in the inner one. A plug orifice 19 is also formed through the wall of container 9 (as seen in Fig. 1) in such a position in relationship to the pouring lugs thereof that no liquid is likely to pass therethrough during pouring operations.

The members 14 may be bolted or otherwise removably fastened to the flange 12 but preferably in order to facilitate their quick removal loops 20 (see Figs.

BEST AVAILABLE COPY

7 and 8) are formed in said members 14 at opposite points of such size to easily pass over the lugs 13 and inclined slots 21 are provided under said loops 20 wherein the mentioned lugs 13 engage and upon partial revolution of these members 14 to the left, said lugs 13 abut the top edge of their slots 21 and so firmly lock said members 14 in place.

10 In use the cover 10 being removed water say a quart is placed in the container 9 its level being about a quarter of an inch below the plug orifice 19 so that there is no risk of spillage therethrough when the water is heated. Now the cover 10 is replaced taking care that the slots 16 and contact pins 18 are opposite the plug orifice 19 and the plug 17 is passed therethrough engaging over said pins 18 and so locking the lid 10 in place and establishing electrical connexion with the members 14 which are electrified with current of opposite polarity. The current passes through the water between the electrified members 14 and so completes the circuit therethrough and by reason of the bad conductivity that is comparatively high resistance of the water extreme heat is generated therein during the passage of the current and boiling soon takes place. In practice with a quart container and using a voltage of 240 volts alternating current and the water being at about 60° Fahrenheit boiling takes place in 2½ to 3 minutes.

35 To remove the members 14 a partial turn is given thereto to bring the lugs 13 out of the slots 21 into the loops 20 when they may be then lifted from the flange 12.

40 It will be seen that the locking of the cover 10 in place by the plug fitting 17 when the members 14 are electrified prevents any tampering with the latter and so eliminates the risk of shock. Also if the heater be forgotten and the water boils away no damage is done because when the water recedes from the members 14 no contact exists between them and no action is taking place and the current is shut off.

50 Having now particularly described and ascertained the nature of my said inven-

tion and in what manner the same is to be performed, I declare that what I claim is:— 55

1. An electrical water heater comprising a jug-like container of porcelain or other non-conductor of electricity having a lid or cover of similar material and concentrically arranged cylindrical metallic members adapted to fit within said container and removably affixed at one end to said lid and having their surfaces comparatively close together and connected to opposite poles of an electric source of supply substantially as described. 60 65

2. In an electrical water heater as claimed in Claim 1 means for removably fastening said concentric cylindrical metallic members to the container lid or cover consisting of a circular depending flange on said lid or cover, outwardly and inwardly of which said members fit lugs on both inner and outer circumferential surfaces of said flange loops in the top end of said members adapted to take over said lugs and inclined locking slots below said loops wherein said lugs fit and firmly engage upon part revolution of said members for the purposes substantially herein described. 70 75 80

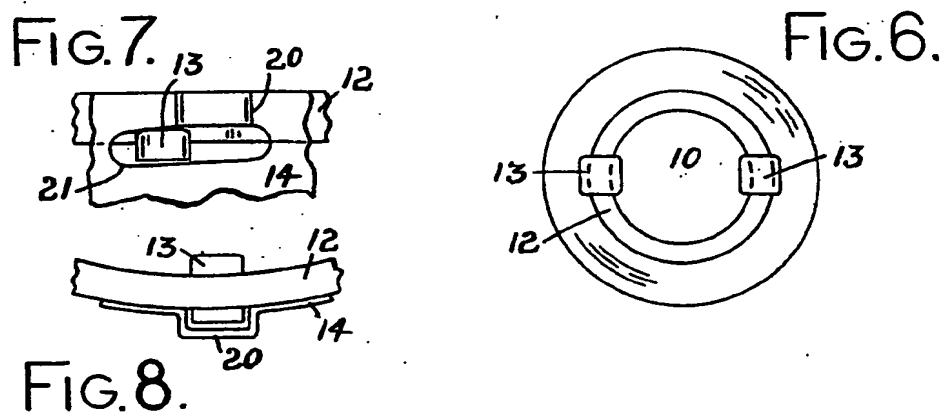
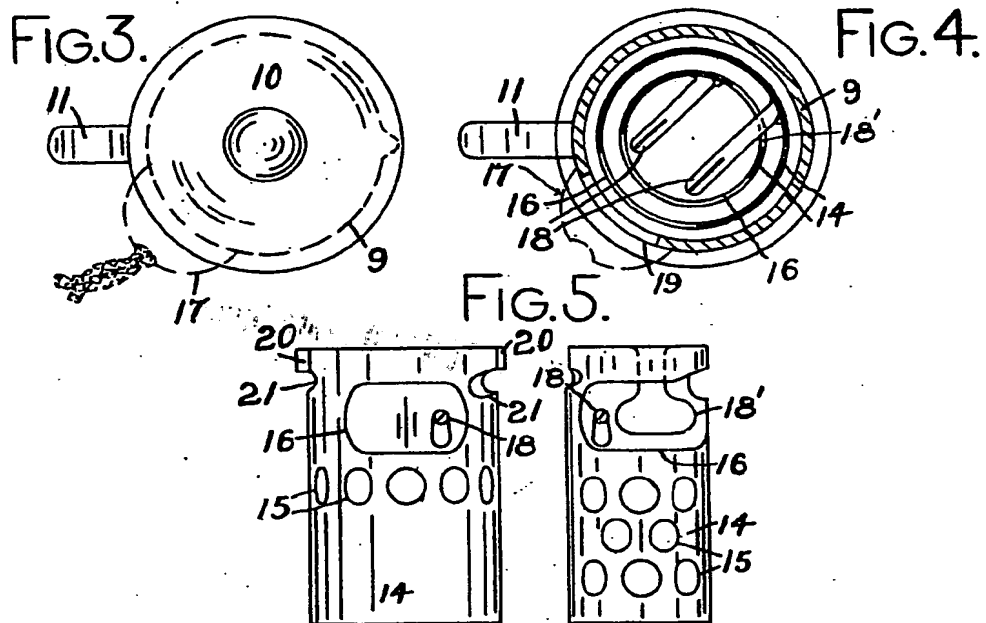
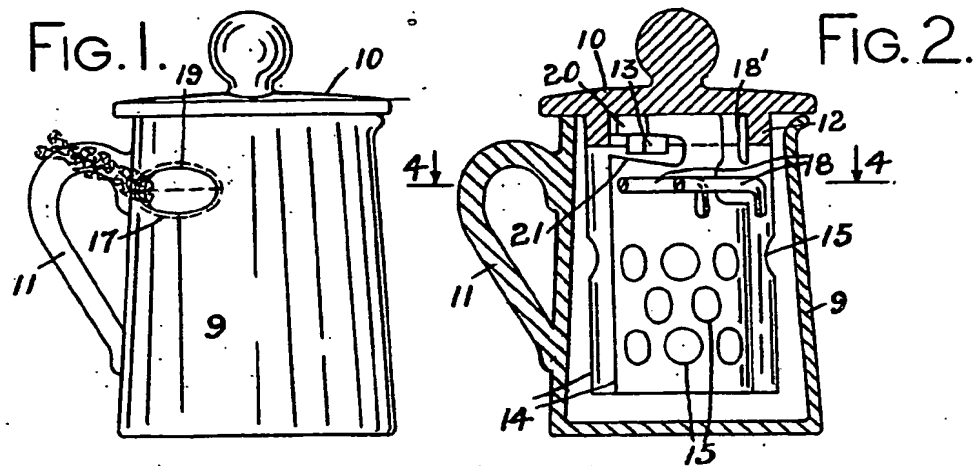
3. In an electric water heater as claimed in Claim 1 means for locking the lid or cover in place when the members are electrified. 85

4. In an electric water heater as claimed in Claim 3, means for locking the lid or cover in place when the members are electrified consisting of an electric twin plug adapted to pass through a slot or orifice in the container wall near the top thereof and through slots in the concentric cylindrical members and take over contact pins internally upon said members at points diametrically opposite the said slots for the purposes substantially herein described. 90 95

5. An electric water heater substantially as herein described or illustrated in the drawings. 100

Dated this 9th day of March, 1926.

J. O'CONNELL,  
Agent for the Applicant.



Charles & Read Ltd. Photo Litho.

**BEST AVAILABLE COPY**

**THIS PAGE BLANK (USPTO)**